Long-term urethral catheter drainage

B G FERRIE, E S GLEN, B HUNTER

British Medical Journal, 1979, 2, 1046-1047

Summary and conclusions

Long-term catheter management is best conducted by specially trained community staff, provided there is close liaison with the urologist. Patients, hospital staff, and the primary health care team all benefit. The scheme is cost-effective, more convenient for patients and relatives, and reduces the need for emergency calls to the general practitioner and hospitals. We advocate development of similar schemes in other districts.

Introduction

Long-term urethral catheterisation is a necessity in some patients and a convenience in others. It is always to be regarded as second best.

Intermittent self-catheterisation has been advocated, especially in America.¹ It is suitable for some women who can deal with the problem of residual urine by catheterisation once or twice daily. Clearly most men, and in particular the elderly, cannot use this technique. Long-term catheter drainage may be indicated in the management of chronic retention and incontinence when patients are either grossly unfit or before surgery. With improved anaesthetic and surgical techniques, fewer patients need catheters, but there is still an appreciable work load. Some patients can be weaned from catheter drainage after several months; others will become fit enough for prostatectomy; but a few will need catheterisation always.

Happily, the old days of Malecot or De Pezzer suprapubic catheters have passed with all their problems. It was impossible to prevent leakage around the catheter and bladder capacity was reduced, the bladder becoming a fibrosed thimble. Modern urethral catheters mean easier management. With suitable care, bladder capacity can be maintained, thereby increasing the chance of subsequent normal micturition.

Long-term urethral catheter drainage

After a one-day symposium on incontinence held in the Walton Conference Centre, Southern General Hospital, it was thought that long-term urethral catheter management could be improved. A major step forward has been the closer liaison with the community nursing service, culminating in the appointment in the south-western district, Glasgow, of a nurse specialising in urology. Community nurses specially trained in catheter management have already worked in Reading.² Replacement of hospital-based catheter-change clinics with primary care domiciliary management, however, has not been introduced on a wide scale.

Walton Urological Teaching and Research Centre, Southern General Hospital, Glasgow G51 4TF

B G FERRIE, FRCS GLAS, urology registrar

E S GLEN, FRCS GLAS, FRCS ED, consultant urologist and director, urodynamic service

Community Nursing Service, South-western District, Glasgow G51 2QZ

B HUNTER, RGN, NDN, district charge nurse (urology)

Hospital-based catheter-change clinics

The only means of follow-up previously available to patients with catheters was the hospital catheter-change clinic in the urology ward. Patients attended this clinic every two months either for a review or for a change of catheter. Many of them were elderly and of impaired mobility (six out of seven needed an ambulance). Long delays resulted from this heavy demand, patients often arriving for the clinic at midday and not reaching home until evening. Various district nurses looked after them between visits to the clinic, as their relatives were unavailable or not well enough themselves to help.

Catheter blockage was a common and major problem, as is still the case in patients outside the south-western district. General practitioners generally dislike handling catheters and sent the patients to hospital, which resulted in the urology ward having to cope with emergency referrals every day—a major problem in this busy department.

Primary care domiciliary management

All our patients on long-term catheter drainage who live in the south-western district, Glasgow, are now followed up at home after discharge from the ward. The district charge nurse visits the urology wards at least three times a week to see new patients before discharge and attends the weekly urology staff meetings, which provide an interchange of ideas and information among all grades of hospital, community, and primary care staff. The general practitioners are fully informed and are invited to contact the staff when necessary.

When difficulties arise patients are advised to contact the district charge nurse, which avoids the need for referral to hospital and results in a reduced work load for the urology department and the ambulance service as well as being easier for the patient and relatives.

Another advantage is that trial without catheter can be performed at home, which again saves a hospital admission. Six patients have been successfully weaned from catheter drainage in this way in the past nine months. As the home-based service expands more patients will have this opportunity.

DETAILS OF CATHETER MANAGEMENT

The emphasis now is on preventing complications, and table I shows the treatment regimens for two categories of patients. We agree with the expressed view³ that large urethral catheters are used too often. We prefer sizes Ch 16-18. Although Silastic-type catheters are said to minimise encrustation by virtue of a smoother surface, we found no difference between these and less expensive catheters. Six months has been suggested as the optimum time for a Silastic

TABLE 1—Management schedules for two categories of patients

Category 1

No grit deposits in urine. Tube clear
Positive urine culture but no systemic upset
Occasional discomfort from catheter
Bypassing uncommon
Generally no difficulty in removing catheter

Management

Catheter check every two weeks or less
Catheter changes between eight and 12 weeks

Category 2

Grit deposits in urine. Crusting in tube
Recurring urinary tract infection causing systemic upset
Penile pain
Bypassing common
Occasional difficulty in removing catheter

Management

Bladder lavage two to three times a week, by relatives when possible
Catheter changes each month or sooner if needed

catheter to remain in situ.⁴ More recent reports,^{5,6} however, have shown no advantage in using these long-term catheters as many have to be replaced earlier than planned. In Brocklehurst's series 69% of Silastic catheters had to be replaced within four weeks. Considering the cost difference (table II) we think that the use of Silastic catheters cannot be justified. Since the establishment of our domiciliary follow-up we have found that Folatex catheters last 8-12 weeks.

TABLE II—Current cost of catheters (+ VAT)

Folatex	..	..	..	89p	Bardic (Teflon-coated)	..	70p
Silastic	..	..	..	£5.88	Silko-Latex	..	95p

PROBLEMS OF LONG-TERM CATHETERISATION

Three main problems arise with long-term catheterisation—bypassing, catheter blockage, and symptomatic infection. Most patients are largely free from these problems when managed in accordance with the regimen for category 1 (table I). We emphasise the need for adequate fluid intake since concentrated urine can make bypassing worse. It acts as an irritant, is supersaturated, and results in grit formation and hence bypassing. Concentrated urine is dark, and this sign warns the patient that he should drink more. Patients are also given general advice on personal hygiene; the presence of a catheter is not a barrier to having a bath or showering. A few patients develop grit deposits and subsequent catheter blockage despite regular bladder washouts two or three times a week and monthly catheter changes as indicated (category 2, table I). We find that a plain radiograph of the bladder area is useful in these patients to check that there is no bladder-stone formation.

At a routine visit the catheter is irrigated initially with about 40 ml of fluid. Any resistance to flow and the rate of return of flow is noted. This is the only method by which the internal lumen of the catheter can be assessed when continuous drainage is used. We prefer intermittent drainage as the flow of urine can be observed when the spigot is removed. These routine catheter checks are usually performed at home once a fortnight until the patient is stabilised. Many patients then manage routine catheter care with the help of relatives, and fewer visits are necessary. Some have recurring problems, however, which require regular attention.

Irritation of the bladder may cause uninhibited contractions and bypassing may result. An excessively large volume in the catheter balloon stimulates the bladder and is a common precipitating factor. The 30-40 ml mark on many catheters may mislead attendants into assuming this to be the recommended volume.

Patients with neurological disease, such as multiple sclerosis, postcerebrovascular accidents, and paraplegia including spinal injuries, are particularly subject to bypassing as a result of uninhibited contractions. Propantheline and similar agents have been much used in the management of uninhibited bladder contractions. Propantheline 15 mg thrice daily increasing to 45 mg four times daily if necessary reduces bladder activity provided there are no significant side effects.

Continuous drainage is to be avoided for daytime use unless bypassing remains a problem. Release every two to three hours is ideal, giving convenience and independence. This also prevents erosion of the bladder mucosa by the tip of the catheter. Continuous catheter drainage will result in shrinking bladder capacity and reduce the possibility of possible weaning from catheter drainage in future. Continuous drainage is preferred for overnight use since the spigot may fall out in a restless patient. Leg bags can cause irritation of the skin, which may be avoided by covering the bag with fabric.

SYMPTOMATIC INFECTION

Positive urine cultures are almost the rule in patients with long-term catheters. It is important to realise that bacteriuria and significant infection are not synonymous. Short courses of an appropriate antibiotic are indicated only if there is evidence of systemic infection.^{7,8} A recent report⁵ compared three regimens and their effect on preventing infection in a group of mainly female geriatric patients. Bladder washouts with noxythiolin resulted in 6% of urine specimens being negative and 90% were negative when continuous doses of oral hexamine hippurate were used. Week-long courses of antibiotics resulted in only 24% of urine samples being clear of organisms. In this series all episodes of bacteriuria were regarded as representing appre-

ciable infection. The authors stated that in elderly incontinent geriatric patients needing catheterisation "infection" of this type is probably not serious in view of the limited life expectancy of the group. Their concern is largely unnecessary being based on bacteriology reports rather than clinical findings. Patients with long-term catheters will have positive urine cultures. Antibiotics are unnecessary and will result in antibiotic-resistant organisms developing.

Various fluids may be used for bladder lavage, but we think cold tap water drawn from the mains supply is adequate in the home. We assessed three types of irrigating fluid for sterility, each for a period of one month. These were (1) boiled water cooled externally, (2) a 1 in 5000 solution of chlorhexidine, and (3) cold tap water. No significant bacterial growth was identified in the apparatus used in bladder lavage, and no growth was found in any of the samples of the three groups of irrigation fluid.

The irrigation syringe should be stored in a dry state to reduce the growth of bacteria or other organisms. The piston must be removed to ensure complete dryness. Re-use of materials—for example, the plastic disposable syringe—results in a considerable saving. This has also been commented on by Greenough *et al.*, who recommended the re-use of plastic syringes by diabetic patients.⁸ The use of tap water avoids the need to carry relatively expensive and heavy solutions to the patient's house.

Conclusions

We would advocate the setting up of domiciliary-based care for these patients. Not only is it easier and pleasanter for the patients and those who look after them but it is also more cost-effective.

We thank the hospital and community staff, and in particular Miss M Buchanan, divisional nursing officer, community nursing services, for their help and encouragement.

References

- Lapides, J, *et al.*, *Journal of Urology*, 1972, **107**, 458.
- Wastling, G, *Nursing Times*, 1972, **68**, 1128.
- Blandy, J, *British Journal of Hospital Medicine*, 1978, **19**, 109.
- Wastling, G, *Nursing Times*, 1974, **70**, 17.
- George, W J R, Feneley, R C L, and Slade, N, VIII International Continence Society Meeting, 1978. Pergamon Press (preprint).
- Brocklehurst, J C, and Brocklehurst, S, *British Journal of Urology*, 1978, **50**, 102.
- British Medical Journal*, 1978, **1**, 61.
- Greenough, A, *et al.*, *British Medical Journal*, 1979, **1**, 1467.

(Accepted 10 August 1979)

Why does the current recruitment literature for blood donors imply that brucellosis is a contraindication but not mention a history of hepatitis? Are people who have had infectious hepatitis at any time still excluded? Patients taking drugs of any sort seem to be rejected, but surely very few drug metabolites could harm a recipient?

There are several reported examples of brucellosis being transmitted by transfusion of blood from a donor who shortly afterwards developed the disease. Because of the chronic nature of the disease, a history of brucellosis is a contraindication to blood donation. Similarly, a history of jaundice is a contraindication to donating blood for transfusion, and hepatitis is clearly the disorder to exclude. The vital antigen is present in the UK and USA in about 1 in 1000 donor bottles, and in some parts of the world in more than 5% of bottles. Positivity may persist for a long time and a period of 19 years has been recorded. "Patients," whether taking drugs or not, should not donate blood. This is not so much because of the remote chance that the drug may produce an untoward effect on the recipient, but rather that any change in the patient's clinical state may then be ascribed by the patient to the blood donation. Even small amounts of drugs such as penicillin, however, if introduced into the circulation of a recipient who has become sensitised, may produce an important reaction.

Mollison, P L, *Blood Transfusion in Clinical Medicine*, 6th edn. Oxford, Blackwell, 1979.